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**Patent Number :**

EP0509025 A1 19921021 [EP-509025]  
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US5841499 A 19981124 [US5841499]  
WO9110936 A1 19910725 [WO9110936]

**Title of the Invention :**

(A1) ELECTRO-OPTICAL LIQUID CRYSTAL SWITCH ELEMENT.

**Other Title :**

(A1) ELEMENT DE CIRCUIT ELECTRO-OPTIQUE A CRISTAUX LIQUIDES.

(A1) ELEKTROOPTISCHES FLÜSSIGKRISTALLSCHALTELEMENT.

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**Application Data :**

1991JP-0502426; 1991DE-5001877; 1990DE-4000451; 1996US-0627388  
1996US-0627387; 1995US-0466068; 1995HK-0000057; 1991WO-EP00022  
1991EP-0902096; 1997JP-0060191; 1997JP-0060190

**Priority Details :**

1990DE-4000451; 1991DE-5001877; 1991WO-EP00022; 1992US-0877187  
1994US-0363968; 1995US-0466068; 1996US-0627387; 1996US-0627388

**IPC (issuing Office) :**

(A1) G02F-001/133 G02F-001/1343

**EPO Classification(ECLA) :**

G02F-001/1343A8  
G02F-001/139T

**In Computer Only Class Codes :**

S02F-201/12D

**US Class Code :**

ORIGINAL (O) : 349141000; CROSS-REFERENCE (X) : 349033000 349136000  
349179000

**Designated States :**

(EP-509025)

DE FR GB

**Designated States :**

(WO9110936)

AT (EP); BE (EP); CH (EP); DE (EP); DK (EP); ES (EP); FR (EP); GB (EP);  
GR (EP); IT (EP); JP; LU (EP); NL (EP); SE (EP); US

**Abstract of the Invention :**

(US5841499)

An electro-optical display device comprising a liquid crystal layer achieves switching using an electric field component which is predominantly parallel to the surface of the liquid crystal layer. Low dependence of image contrast on viewing angle is achieved by selection of parameters including pretilt angle  $\alpha_0$ , orientation angle  $\beta_0$ , etc. of the liquid crystal molecules in the layer. Reflection mode devices are described.